

REMARKS/ARGUMENTS

Claims 22 – 43 are pending in the application. Claims 1 – 21 were canceled in an earlier amendment.

Applicants would like to thank the Examiner for the “Examiner’s Suggestions” on page 15 (paragraph 8) of the Office Action. Accordingly, independent claims 22, 29, 33, and 41 have been amended to clarify “life expectancy importance factors” which are important to a particular patient.

Claim 37 has been amended simply to correct punctuation. Dependent claim 43 has been amended for consistent use of the modifier “patient-specific” with the independent claim.

Claims 22 – 27, 29, and 33 – 43 are rejected under 35 U.S.C. §103(a), over US Patent No. 5,031,161 to Kendrick (hereinafter, “Kendrick”), in view of U.S. Patent No. 5,692,501 to Minturn (hereinafter, “Minturn”), and further in view of the newsletter titled, “Quality Control Measures Tracked for Heart Surgeons,” (hereinafter, “Quality Control”).

Independent claim 22 now recites, in part, “A computer system...comprising...a computer memory storing (i) **health profile data** comprising **medical history data** describing said patient, and (ii) a **patient-specific life expectancy potential (LEP) model** determined in

dependence on said patient's stored **health profile data** and comprising **life expectancies** for said patient and **life expectancy importance factors assigned to specific health profile data elements**; ...wherein each of said **life expectancy importance factors represents the percentage contribution** to said life expectancy potential made by said specific health profile data element; and wherein each of said **life expectancy importance factors is initially assigned a value** based on statistical data, and wherein said value of each of said **life expectancy importance factors changes according to the correlation of said patient's stored health profile data with said information bank.**" [emphasis added]

Kendrick discloses a "life expectancy timepiece" 10, preferably shaped as a wristwatch (col. 2, lines 24 – 25), that displays the "time remaining in a user's life" (col. 2, lines 28 – 34). Initially, the time remaining in the user's life is determined by actuarial data (col. 1, lines 8 – 9). For instance, according to Table I, a female at age 65 would have a life expectancy of 16.57 (additional) years (col. 5, line 25). Because projected lifespan increases for each year that the user survives, Kendrick's timepiece permits the user to manually shift the lifespan to add in the additional remaining lifespan according to the actuarial number for the older age (col 4, line 18).

The Kendrick life expectancy timepiece can also be further adjusted based on various "health factors," shown in Table II (col. 5, line 55 to col. 6, line 27), including: father and/or mother living to older than 70 (+1 for each year above 70); married (+ 5 years), unmarried and over 25 (– 1 for each decade unmarried if over 25 years old); small town (+ 4 years), city (– 2

years); wealthy (– 3 years) or poor (also – 3 years). A good-natured or “placid” person is credited an additional +1 to +5 years of lifespan in the Kendrick model.

However, Kendrick never discloses or suggests, incorporating health profile data that are **patient-specific**, as in claim 22. Instead, Kendrick’s initial lifespan value is determined by actuarial tables (shown in Table I, cols. 4 – 5), and adds or subtracts a set number of years based on the impact of certain characteristics on **populations** of people – for example, that the effect of “marriage” on any person’s lifespan is +5 years, even though marriage, when considered for the individual person, may increase or decrease lifespan. As another example, Kendrick’s model deletes 3 years of lifespan for **all** people who smoke $\frac{1}{4}$ to 1 pack of cigarettes per day (col. 6, line 22). By contrast, in the present model, health data or lifestyle choices affect life expectancy in the context of that specific patient’s personal health profile data, and health profile data are weighted by assigned “life expectancy importance factors” (see, e.g., the application at page 9, lines 16 – 21). Thus, “smoking” may have a different “percentage contribution” for an individual having a genetic predisposition to pulmonary illness or lung cancer, as compared with another person of the same age and demographic profile without that genetic predisposition. This is neither disclosed nor suggested in Kendrick.

Minturn discloses a model for gathering and analyzing both “physical” and “non-physical” data about a person in order to develop small, incremental changes that can **optimize** a person’s “**wellness**” (col. 9, lines 61 – 64). Minturn’s model gathers information by means of

questionnaires, physical examinations, and laboratory data. The compiled information is compared against an “external” standard of health, and deviation of the subject from that standard is graded to “objectively quantify” a person’s level of “Scientific Wellness” (col. 14, lines 52 – 55) on a “series of 10-point scales” (col. 12, lines 48 – 52). Based on those results, the person can be counseled on incremental changes to improve or optimize wellness. The model includes “non-physical” lifestyle habits affecting wellness, such as “Outlooks/Attitudes and Behaviors” and “Commitment to Wellness” (see, e.g., Figures 3A and 3B), and relies upon the honesty of the responses. Minturn uses “physical” measurements not only as data in their own right but as tests to encourage “cheaters” to provide more truthful answers. For example, Minturn states that individuals tend to be dishonest about their responses for eating habits and exercising, but that “the accuracy of their responses was magically increased to near perfect truth telling if that person was aware that their [sic] blood lipids...or glucose...or blood pressures...were going to be taken in the next 48 hours...” Minturn adds, “...when an individual knew such measurements were to be taken, they became extremely honest, told the bottom line truth...this was not generally the case if the person only responded to the wellness data gathering forms, devices, questionnaires...” (col. 20, lines 49 – 67). In brief, once the physical and non-physical data are compiled and scaled, Minturn discloses that the individuals are presented with “incremental” actions and health choices they can follow to optimize “wellness.”

However, as a threshold matter, models that gather and use health data to optimize “**wellness**” – particularly as described by Minturn – and other models that are premised on “**life**

expectancy” (or life expectancy potential, or “LEP”), are fundamentally different in operation. Even if, for the sake of argument, Kendrick and Minturn disclosed each of the features of claim 22, the two models would interfere with the operation of the other and it would not have been obvious to combine them. A health choice designed to improve a person’s “wellness” (which encompasses non-physical factors such as “outlook”), might well have little or no effect on the person’s “life expectancy potential,” or even decrease it. As a hypothetical example, an 84-year old person suffering with severe hip arthritis might be strongly encouraged under a “wellness” model to undergo hip surgery (for instance, for a large improvement in measures of “wellness”), even though surgery might result in no gain (or even a decrease) in his life expectancy potential (LEP). Kendrick’s “life expectancy timepiece” (wristwatch) is premised so that an individual’s heightened awareness of his remaining life expectancy (by seeing it on his wrist) will motivate him to make positive health and lifestyle choices. For this reason alone, it would not have been obvious at the time of this application to modify the teaching of Kendrick with Minturn, without benefit of hindsight in such a way as to describe the features of claim 22.

Moreover, even when considered in combination, Kendrick and Minturn fail to disclose all of the elements of amended claim 22, namely “**health profile data**” that are assigned “**life expectancy importance factors**” (that represent the **percentage contribution** to life expectancy potential), and the “**patient-specific life expectancy potential (LEP) model**” in which the health profile data are used.

The third cited reference, the “Quality Control” newsletter, discloses a statistical analysis program that has collected data on 13,000 patients who underwent arterial surgery at a Belgian teaching hospital since 1971, and compares “the recovery and the status of 4,000 patients **with the computer projections.**” [emphasis added]. Thus, Quality Control discloses a model where health data from a large pool of anonymous individuals is aggregated and compared with an external standard (the “computer projections”) so that, on a statistical basis, “...it will allow a surgeon to decide on the best treatment and an improved way of informing a patient of his condition.” (paragraph 7). In essence, the model is providing a guide for the surgeon that, when a particular medical decision was made a certain number of times, the results were favorable for a particular percentage of those patients, as compared with computer projections. However, what the Quality Control model does **not** do is provide the surgeon with information that, for an individual Patient A, based on Patient A’s family history, birth data, lifestyle choices, etc., that a particular choice is likely to result in increased life expectancy. By aggregating very large pools of data, the “Quality Control” model averages out, and thereby minimizes, the effect of an individual patient’s specific health history on a given medical decision as to its impact on life expectancy potential.

Thus, Applicants respectfully submit that Minturn teaches away from a “life expectancy” model, particularly one where an individual’s health profile data is weighted by “life expectancy importance factors,” as recited in claim 22. Likewise, for the reasons above, “Quality Control” teaches away from “patient-specific” life expectancy potential model.

Accordingly, Applicants respectfully submit that the features of claim 22 are not disclosed or suggested by Kendrick, alone or taken in combination with Minturn or the “Quality Control” newsletter, and requests reconsideration and withdrawal of the rejection to claim 22 brought under §103(a).

For at least the same reasons as provided for independent claim 22, dependent claims 23 – 27 and claim 43 are patentable over Kendrick in combination with Minturn and/or with Quality Control.

Independent claim 29 now recites, in part, “A portable electronic device...comprising...a computer memory having encoded therein: **health profile data** comprising **medical history data describing said patient**, and a **patient-specific life expectancy potential (LEP) model** determined in dependence on said patient's stored health profile and comprising life expectancies for said patient and **life expectancy importance factors assigned to specific health profile data elements**...wherein each of said **life expectancy importance factors represents the percentage contribution** to said life expectancy potential made by said specific health profile data element; and wherein each of said **life expectancy importance factors is initially assigned a value** based on statistical data, and wherein said value of each of said **life expectancy importance factors changes according to the correlation of said patient's stored health profile data with said information bank.**” [emphasis added]

Claim 29 has been amended to clarify the “life expectancy importance factors,” and how these factors are adjusted for the “portable electronic device” that is recited in the claim.

The relevant disclosures of Kendrick, Minturn, and the cited Quality Control newsletter pertaining to claim 29 are the same as were discussed above in detail for claim 22. In brief, Kendrick’s “life expectancy timepiece,” displays the time remaining in a user’s life, using an initial value from actuarial based on the user’s current age, and adjusted in whole years by the user depending on a series of factors in Table II, such as his parents’ ages, married vs. single, residing in a small town vs. city, “good-natured and placid” vs. “tense and nervous,” etc. As noted for claim 22, above, such adjustments (for example, – 3 years in lifespan if a one-pack-a-day smoker) are projections based on the impact this lifestyle choice has in **populations** of people, rather than being incorporated into a **patient-specific** model, including his personal genetic and health profile data. In addition, the health profile data elements in claim 29 are weighted by their assigned “life expectancy importance factors” (see an example in the application at page 9, lines 16 – 21) that represent the **percentage contribution** made by that particular health profile data element to the individual’s life expectancy potential (LEP). Moreover, the life expectancy importance factors change according to a correlation of the patient’s stored health profile data with medical information bank. None of these several features are disclosed or even suggested by Kendrick.

Minturn, which describes a model for gathering “physical” and “non-physical” information about a person to optimize the person’s “wellness,” which uses a completely different operating principle than Kendrick’s life expectancy timepiece and would likely interfere with the operation of Kendrick, for the very reasons as described above for claim 22. Moreover, Minturn does not disclose or suggest “**life expectancy importance factors**” that represent the **percentage contribution to life expectancy potential** by that specific health profile element, nor changes to these life expectancy importance factors according to the correlation of the health profile data with a medical information bank. Thus, the combination of Kendrick and Minturn does not disclose all of the features of claim 29, nor would there have been a reasonable expectation of success by combining the distinctly different approaches to lifestyle changes disclosed in Kendrick and Minturn.

Likewise, the Quality Control newsletter, which discloses a model where health data from a large pool of anonymous individuals is aggregated and compared with an external standard, does not supplement Kendrick and Minturn so as to reasonably suggest the “life expectancy importance factors” in claim 29 representing the “percentage contribution to life expectancy potential” by a specific health profile element, nor changes to these life expectancy importance factors according to the correlation of the health profile data with a medical information bank.

For these reasons, Kendrick, taken alone or in combination with Minturn and/or Quality Control, does not render obvious all of the features in claim 29. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the §103(a) rejection to claim 29.

Independent claim 33 now recites, in part, “A **method for monitoring or managing life expectancy** of a patient comprising: **creating initially a patient-specific life expectancy potential (LEP) model** by correlative analysis of said patient's stored health profile data and a medical information bank, said medical information bank is at least one selected from the group consisting of: demographic, geographic, medical, and lifestyle information describing members of a population of a community of which said patient is a member, said **patient-specific LEP model** determined in dependence on said patient's stored health profile describing life expectancies for said patient and **life expectancy importance factors assigned to specific health profile data elements**, and said creating comprising computer execution of a plurality of computer instructions; querying said **patient-specific LEP model to determine a life expectancy for said patient...**wherein each of said **life expectancy importance factors represents the percentage contribution** to said life expectancy potential made by said specific health profile data element; and...wherein said value of each of said **life expectancy importance factors changes according to the correlation of said patient's stored health profile data with said information bank.**” [emphasis added]

The relevant sections of Kendrick, Minturn, and Quality Control are described in detail for the discussion of independent claim 22 above. Briefly, Kendrick's "life expectancy timepiece" adjusts life expectancy by numbers of years according to various health data or lifestyle choices (married vs. single, smoking, personality disposition, exercise, etc.) where such numbers are based on effects across certain **populations** of people, rather than **patient-specific** adjustments as highlighted in claim 33 above. In addition, Kendrick does not disclose or suggest health profile data elements that are weighted by assigned "life expectancy importance factors" that represent the **percentage contribution** made by that particular health profile data element, or change those importance factors according to a correlation of the patient's stored health profile data with medical information bank. Thus, Kendrick does not disclose or suggest several features of claim 33.

The secondary reference, Minturn, describes a model to optimize the person's "wellness," where the information-gathering disclosure was cited as supplementing Kendrick. However, for the reasons described in detail for claim 22, Kendrick and Minturn provide models for lifestyle changes that operate under completely different principles and to a different end result ("life expectancy" vs. "wellness"). And, like Kendrick, Minturn still does not disclose or suggest "**life expectancy importance factors**" that represent the **percentage contribution to life expectancy potential** by that specific health profile element, nor changes to these life expectancy importance factors according to the correlation of the health profile data with a medical information bank. Thus, the combination of Kendrick and Minturn does not disclose all of the features of claim 29,

nor would there have been reason to suggest combining Kendrick and Minturn, in the absence of hindsight, to have rendered obvious the features in claim 33.

The third cited reference, the Quality Control newsletter, discloses a model aggregating health data from a large pool of anonymous individuals to compare with an external standard. However, the Quality Control model does **not** provide averages out, and thus negates, the effects of an individual patient's specific health history on a given medical decision on life expectancy potential. Thus Quality Control teaches away from the present method in claim 33, and it would not have been obvious to combine it with Kendrick and/or Minturn so as to disclose all of the features of claim 33. In addition, Quality Control does not disclose or teach "life expectancy importance factors" representing the "percentage contribution to life expectancy potential" by a specific health profile element, nor how such importance factors are adjusted. For this reason as well, Quality Control does not supplement the disclosures in Kendrick and/or Minturn to disclose all of the features of claim 33.

Accordingly, Applicants respectfully submit that independent claim 33 is patentable over Kendrick, taken alone or in combination with Minturn and/or Quality Control, and request reconsideration and withdrawal of the rejection to claim 33 brought under §103(a).

For at least the same reasons as for independent claim 33, dependent claims 34 – 40 are also patentable over Kendrick in combination with Minturn and/or with Quality Control.

Independent claim 41 now recites, in part, “A computer memory comprising...a **patient-specific life expectancy potential (LEP) model...said patient-specific LEP model** determined in dependence on said patient's stored health profile describing life expectancies for said patient and **life expectancy importance factors assigned to specific health profile data elements**, and said creating comprising computer execution of a plurality of computer instructions...wherein each of said **life expectancy importance factors represents the percentage contribution** to said life expectancy potential made by said specific health profile data element...and wherein said value of each of said **life expectancy importance factors changes according to the correlation of said patient's stored health profile data with said information bank.**” [emphasis added].

The relevant disclosures of Kendrick, Minturn, and Quality Control are discussed in detail above. Briefly, Kendrick fails to disclose a computer memory where the life expectancy potential model is “patient-specific,” nor the use of life expectancy importance factors to weight health profile data factors by their percentage contribution to life expectancy potential. Neither Minturn nor Quality Control, would reasonably have been combined with Kendrick by a person of skill in the art. Further, even if all three references were to be combined, they do not disclose

all of the features of claim 41, as amended, for the same reasons as discussed above for independent claims 22, 29 and 33.

Accordingly, for the reasons above, Applicants respectfully request that the rejections to claim 41 brought under §103(a) be reconsidered and withdrawn.

For at least the same reasons as for independent claim 41, dependent claim 42 would likewise be patentable over Kendrick, alone or in combination with Minturn and/or Quality Control.

Claim 43, which depends from claim 22, is rejected in the Office Action as “substantially similar to claim 29,” and rejected on the same grounds as claim 29. However, dependent claim 43 includes at least one feature that is not recited in claim 29, such as, “querying said patient-specific LEP model to determine a life expectancy for said patient should a selected future event occur in said patient’s life...” Applicants respectfully submit that claim 43 does, in fact, recite different features than claim 29. Dependent claim 43 is distinguished over Kendrick, Minturn and Quality Control for at least the same reasons as provided for independent claim 22.

Dependent claims 28, 30 and 32 are rejected under 35 U.S.C. §103(a) as unpatentable over Kendrick, Minturn, Quality Control, and further in view of U.S. Patent No. 5,867,821 to Ballantyne (hereinafter, “Ballantyne”) and/or U.S. Patent No. 5,193,855 to Shamos (hereinafter, “Shamos”).

[Note: because the claims were renumbered in a previous Amendment, it is clear from the Office Action on page 14 that the rejection to “claim 32” corresponds to current “claim 31.” This response will treat the rejection to claim 32 as a rejection to current “ claim 31.”]

Specifically, dependent claim 28 recites, “The computer system of claim 22 further comprising means for providing secure access only to said health profile data.” Dependent claim 30 recites, “The portable electronic device of claim 29 wherein said computer memory further encodes access control data.” Dependent claim 31 recites, “The portable electronic device of claim 30 wherein said access control data is at least one selected from the group consisting of: fingerprint identification data, footprint identification data, DNA identification data, imagery identification data, and password data.”

Ballantyne discloses an electronic information system to distribute medical information in a hospital setting so that some record keeping services can be made paperless (col. 1, lines 65 – 67 and col. 2, lines 55 – 57). The Master Library (ML) is linked to external sources outside of

the hospital (col. 6, lines 49 – 57). For these reasons, Ballantyne discloses a security architecture that requires individuals be identified and authenticated before access to records is granted (col. 7, lines 66 – 67 and col. 8, lines 1 – 5).

Shamos discloses a system for matching a patient with a medical procedure (diagnostic tests, medications, surgery, etc.) by including identification criteria (such as fingerprint data) in the patient record (col. 4, lines 40 – 54). The nurse, physician, or other healthcare provider also is identified by the fingerprint (col. 5, lines 37 – 44). If all of the prints match, an identification label is generated (col. 5, lines 50 – 65) and transferred to patient records, specimen containers, etc., as needed (col. 5, lines 51 – 53).

As a threshold issue, Applicants submit that dependent claims 28, 30, and 31 are already distinguishable over the cited art because the corresponding independent claims 22 and 29, are now patentable over Kendrick, Minturn, and Quality Control, for the reasons discussed earlier.

Moreover, Applicants respectfully submit that a person of ordinary skill in the art, when presented with Kendrick's "life expectancy timepiece," Minturn's "wellness" model, and/or Quality Control's aggregate cardiac data model, would not have been motivated to select Ballantyne to combine with any of the cited references in such a way so as to describe all of the features of claim 28, 30, or 31, because Ballantyne is *not* directed to designing health choices or

lifestyle actions that would increase a patient's life expectancy potential or "wellness."

Likewise, it would not have been obvious to have selected Shamos to combine with any one of Kendrick, Minturn, and/or Quality Control, as there would have been no motivation to select a security model that was designed to minimize human errors (by physically identifying a patient and his health care provider by fingerprints) with life expectancy potential models or wellness models.

Accordingly, Applicants believe that it would not have been obvious for a person of skill in the art to have combined Kendrick, Minturn, Quality Control, Ballantyne, and/or Shamos to attain the features recited in claims 28, 30, and 31, without benefit of hindsight. Therefore, Applicants request that the rejections under §103(a) to claims 28, 30, and 31 be reconsidered and withdrawn.

Applicants again express their appreciation for the "Examiner's Suggestions" in the Office Action, and have amended the appropriate claims to clarify "life expectancy importance factors."

Therefore, Applicants submit that claims 22 – 43 are now allowable over the cited art, taken alone or in combination. Applicants respectfully request reconsideration and withdrawal of all pending rejections and passage of these claims to allowance.

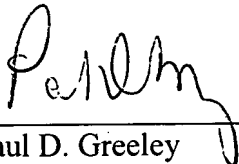
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